Joint African Materials Research Society/International Union of Materials Research Societies

Monthly Webinar Series

Thursday, 1 October 2026

15:00 GMT+2

Register Now!

Engineering Materials, Interfaces, and Light for Thin-Film Optoelectronics

Prof. Shaimaa Ali Mohamed
Center for Nanotechnology (CNT)
Zewail City for Science and Technology, Egypt
E-mail: smohamed@zewailcity.edu.eg

Research Homepage:
https://scholar.google.com/citations?user=d2rd4sEAAAAJ&hl=en

Abstract

This work explores nanoscale materials and interface engineering for thin-film optoelectronics. Semiconductor quantum dots are engineered through size control, surface chemistry, ligand exchange, and interparticle coupling to tune their optical and electronic properties and improve charge transport in thin-film devices. In parallel, nanostructured interfaces are developed to control light coupling, scattering, and absorption within organic optoelectronic architectures. Together, these approaches demonstrate how materials, interfaces, and optical structures can be synergistically engineered to control charge and light, providing pathways toward improved organic and hybrid optoelectronic devices.

Short Biography

Dr. Shaimaa Ali Mohamed is an Associate Professor at Zewail City of Science and Technology, Egypt, and a researcher in next-generation photovoltaic technologies and organic electronic materials. She earned her B.Sc. and M.Sc. degrees from Ain Shams University and Cairo University, respectively and conducted her Ph.D. research at the Linz Institute for Organic Solar Cells (LIOS), Johannes Kepler University Linz, Austria, under the Africa–North Exchange Program (ANEX) fellowship funded by ICTP and ANSOLE.

Dr. Shaimaa lead research on the design, fabrication, and characterization of organic and photonic devices, with particular emphasis on enhancing light harvesting, charge transport, and device efficiency. She is strongly committed to developing scalable, flexible, and high-efficiency solar energy technologies that contribute to sustainable energy solutions. She has authored numerous high-impact scientific publications and has presented her research at leading international conferences.

At Zewail City, she has established the Solar Organic Electronics Laboratory, supported by her key contributions to several international research projects, including the STDF Egypt–Italy Joint Fund Project, the Newton–Musharafa STDF Project, and the Solar Energy Alliance (ASRT). She has awarded the Best ANSOLE Fellow Award (2016), Best Poster and Best Oral Presentation awards at the Summer School of Energy in Arusha, Tanzania (2015), the Young Research Award in Thessaloniki, Greece (2015), the Best Oral Contribution Prize awarded by the ICTP Workshop-smr2515 (2013).